

**LISTING OF THE CLAIMS**

The following is a complete listing of all the claims in the application, with an indication of the status of each:

- 1        1. (Canceled)
- 1        2. (Currently amended) The mesh generation system according to claim + 23, wherein  
2        said mesh characteristic extraction unit extracts said characteristic of said conventional  
3        mesh based on the geometrical characteristic of the elements of said conventional mesh.
- 1        3. (Currently amended) The mesh generation system according to claim + 23, wherein  
2        said mesh characteristic extraction unit extracts said characteristic as a tensor field.
- 1        4. (Currently amended) The mesh generation system according to claim + 23, further  
2        comprising:  
3                a mesh characteristic changing unit for changing said characteristic of said  
4        conventional mesh extracted by said mesh characteristic extraction unit,  
5                wherein said mesh generator generates a mesh based on said characteristic of said  
6        mesh changed by said mesh characteristic changing unit.
- 1        5. (Original) The mesh generation system according to claim 3, further comprising:  
2                a tensor field synthesization unit for synthesizing tensor fields describing multiple  
3        mesh characteristics extracted by said mesh characteristic extraction unit,  
4                wherein said mesh generator generates a mesh by using the tensor field obtained  
5        by said tensor field synthesization unit.

- 1        6. (Original) The mesh generation system according to claim 3, further comprising:  
2                a tensor field extrapolation unit, for receiving a shape model for mesh generation  
3                and for extrapolating said tensor field that is extracted by said mesh characteristic  
4                extraction unit and that indicates said characteristic of said conventional mesh, so that  
5                said tensor field matches said shape model,  
6                wherein said mesh generator generates a mesh by using said tensor field obtained  
7                by said tensor field extrapolation unit.
- 1        7. (Canceled)
- 1        8. (Currently amended) The design support system according to claim ~~7~~ 27, wherein said  
2        mesh generation ~~means~~ unit extracts the characteristic of ~~said a~~ predetermined mesh as a  
3        tensor field; and employs said characteristic to generate a mesh for said shape model.
- 1        9. (Currently amended) ~~An analysis system, for performing finite element analysis of a~~  
2        ~~predetermined shape model, comprising~~ The mesh generation system according to  
3        claim 3, wherein:  
4                ~~said~~ mesh generation ~~means for generating~~ unit generates a mesh for a target  
5        shape model based on the characteristic of a predetermined mesh consonant with an  
6        analysis purpose; and  
7                a finite element analysis means for performing unit performs a finite element  
8        analysis based on said ~~obtained~~ mesh generated by said mesh generator.
- 1        10. (Currently amended) The analysis system according to claim 9, wherein said mesh  
2        generation ~~means~~ unit generates a mesh for said shape model based on said mesh  
3        characteristic represented as said tensor field.

1 11. (Currently amended) ~~An analysis method for analyzing a characteristic of a~~  
2 ~~predetermined mesh using a computer comprising~~ The method of claim 24, wherein the  
3 step of using a mesh characteristic extraction unit to receive a conventional mesh and  
4 extract a characteristic from said conventional mesh includes the step of:  
5 ~~receiving a mesh to be analyzed;~~  
6 extracting the characteristic of said mesh as a tensor field; and  
7 ~~outputting said characteristic of said mesh.~~

1 12. (Currently amended) The analysis method according to claim 11, wherein ~~said step~~  
2 ~~of extracting said characteristic of said mesh includes~~ the step of using a mesh  
3 characteristic extraction unit to receive a conventional mesh and extract a characteristic  
4 from said conventional mesh further includes the steps of:  
5 calculating an inertia tensor for each of the elements of said mesh; and  
6 calculating an overall tensor field for said mesh based on said inertia tensor  
7 obtained for each of said elements.

1 13. (Currently amended) ~~An analysis method for analyzing a characteristic of a~~  
2 ~~predetermined mesh using a computer comprising~~ The method of claim 24, wherein the  
3 step of using a mesh characteristic extraction unit to receive a conventional mesh and  
4 extract a characteristic from said conventional mesh includes the step of:  
5 extracting a characteristic of an analysis target mesh as a tensor field.

1 14. (Currently amended) ~~An analysis method for analyzing a characteristic of a~~  
2 ~~predetermined mesh using a computer comprising~~ The method of claim 24, wherein the  
3 step of using a mesh generator to generate a mesh for a target shape model includes the  
4 steps step of:  
5 ~~extracting a characteristic from a conventional mesh; and~~  
6 generating a mesh for a predetermined shape model based on the extracted

7 characteristic.

1 15. (Currently amended) The ~~mesh-generation~~ method according to claim 14, ~~wherein~~  
2 ~~said step of extracting said characteristic includes~~ further including the steps of:

3 calculating the size of each of said elements of said conventional mesh; and  
4 employing the size of each of said elements to calculate a field describing said  
5 characteristic of said conventional mesh and corresponding to said overall conventional  
6 mesh.

1 16. (Currently amended) The ~~mesh-generation~~ method according to claim 14, ~~wherein~~  
2 ~~said step of extracting said characteristic may include~~ further including the steps of:

3 calculating not only the sizes of said elements of said conventional mesh, but also,  
4 for each of said elements, the direction of flow, and the size and the aspect ratio of an  
5 ellipse or of an ellipsoid, which are defined based on said elements; and  
6 employing said direction of flow, and said size and said aspect ratio of said ellipse  
7 or said ellipsoid, to calculate a field describing said characteristic of said conventional  
8 mesh and corresponding to the overall conventional mesh.

1 17. (Currently amended) The ~~mesh-generation~~ method according to claim 14, ~~wherein~~  
2 ~~said step of extracting said characteristic includes~~ further including the steps of:

3 calculating an inertia tensor for each of said elements of said conventional mesh;  
4 calculating a tensor field, based on said inertia tensor obtained for each of said  
5 elements, for said overall conventional mesh; and  
6 extrapolating said obtained tensor field, so that for mesh generation said tensor  
7 field matches said shape model.

1 18. (Currently amended) The ~~mesh-generation~~ method according to claim 14, ~~wherein~~  
2 ~~said step of extracting said characteristic includes~~ further including the steps of:

3           calculating an inertia tensor for each of said elements of said conventional mesh;  
4    and  
5           employing said inertia tensor for each of said elements to directly calculate a  
6    tensor field that is extrapolated for the entire shape model.

1    19. (Canceled)

1    20. (Currently amended) ~~The storage medium program transmission apparatus~~ according  
2    to claim ~~19~~ 25, wherein said computer code contained in said storage medium program  
3    ~~also permits said computer to perform~~ further implements the step of:  
4           ~~a process for calculating~~ processing the calculation of a tensor field defined based  
5    on said elements of said predetermined mesh in order to extract said characteristic.

1    21. (Currently amended) ~~A~~ The program transmission apparatus according to claim 25,  
2    further comprising:  
3           ~~storage means, for storing a program that permits a computer to perform;~~  
4           ~~—— a process for extracting from a predetermined mesh a characteristic that matches~~  
5           ~~the purpose of finite element analysis, and~~  
6           ~~—— a process for generating for a predetermined shape model a mesh based on the~~  
7           ~~characteristic extracted from said predetermined mesh; and~~  
8           transmission means; for reading said program from said storage ~~means~~ medium  
9    and transmitting said program.

1    22. (Canceled)

1    23. (New) A mesh generation system for generating a mesh used for finite element  
2    analysis, comprising:  
3           a mesh characteristic extraction unit which receives a conventional mesh and

4 extracts a characteristic from said conventional mesh,  
5 a mesh characteristic change unit which changes a characteristic of a mesh  
6 extracted by said mesh characteristic extraction unit,  
7 a mesh generator which generates a mesh for a target shape model in accordance  
8 with  
9 a characteristic extracted by said mesh characteristic extraction unit or  
10 a characteristic extracted by said mesh characteristic extraction unit as  
11 changed by said mesh characteristic change unit, and  
12 a display to which said mesh may be sent as an output.

1 24. (New) A computer-implemented method for generating a mesh used for finite  
2 element analysis, comprising the steps of:  
3 using a mesh characteristic extraction unit to receive a conventional mesh and  
4 extract a characteristic from said conventional mesh,  
5 using a mesh characteristic change unit to change a characteristic of a mesh  
6 extracted by said mesh characteristic extraction unit,  
7 using a mesh generator to generate a mesh for a target shape model in accordance  
8 with  
9 a characteristic extracted by said mesh characteristic extraction unit or  
10 a characteristic extracted by said mesh characteristic extraction unit as  
11 changed by said mesh characteristic change unit, and  
12 sending said mesh as an output to a display.

1 25. (New) A program transmission apparatus for instructing a computer to generate a  
2 mesh used for finite element analysis, comprising:  
3 storage medium for computer code implementing the steps of:  
4 processing a mesh characteristic extraction unit which receives a conventional  
5 mesh and extracts a characteristic from said conventional mesh,

6           processing a mesh characteristic change unit which changes a characteristic of a  
7 mesh extracted by said mesh characteristic extraction unit,  
8           processing a mesh generator which generates a mesh for a target shape model in  
9 accordance with  
10           a characteristic extracted by said mesh characteristic extraction unit or  
11           a characteristic extracted by said mesh characteristic extraction unit as  
12 changed by said mesh characteristic change unit, and  
13           processing said mesh as an output to a display.

1   26. (New) A design support system, for using a computer to support design, comprising:  
2           a mesh generation system which receives a template mesh as an input for a mesh  
3 characteristic extraction unit and receives a shape model as an input for a mesh generator;  
4           a mesh characteristic extraction unit which receives a conventional mesh and  
5 extracts a characteristic from said conventional mesh,  
6           a mesh characteristic change unit which changes a characteristic of a mesh  
7 extracted by said mesh characteristic extraction unit,  
8           a mesh generator which generates a mesh for a target shape model in accordance  
9 with  
10           a characteristic extracted by said mesh characteristic extraction unit or  
11           a characteristic extracted by said mesh characteristic extraction unit as  
12 changed by said mesh characteristic change unit, and  
13           a display to which said mesh may be sent as an output.

1   27. (New) The design support system of claim 26, wherein said mesh generation system  
2 may also receive a shape model as an input for a tensor field extraction unit.